Un joyau méconnu[1]

The "FIRST (Early) ROMANESQUE" CHURCH of SAINTE-EULALIE de FUILLA, PYRÉNÉES-ORIENTALES, FRANCE

by Simon Rush

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(Figures cited in the text below are shown in Annex 1 - images and diagrams *(page 11). For terms in red, see* Annex 2 - Glossary *(page 16).)*

Foreword

The Romanesque Abbeys of St. Martin du Canigou and St. Michel de Cuxa in the Pyrénées-Orientales are rightly famous. There is however, for those interested in such architecture, a little-known hidden gem nearby.

The following paper was written by Simon Rush, of Sheffield, England. Simon was a builder by trade; but he was also a scholar throughout his life. He obtained degrees in geology, French and medieval French.

In 2003 Simon acquired a house in Vernet-les-Bains and set about a new project, studying for a PhD relating to the early Romanesque churches of the region. His thesis was entitled "The First Romanesque architecture of Conflent, Pyrénées-Orientales, France (66). Tradition, System and Style".[2] There, Simon approached these churches from a new perspective, that of a builder with a qualification in geology. He was particularly interested in the stonemasons who constructed these buildings, their inspiration, and also the constraints of the available materials. In 2022 Simon, by now 73 years old, was awarded a PhD from Birkbeck College, University of London for his thesis.

His examiners were particularly interested in his attention to the geology of the region, but also in his work on the church of Sainte-Eulalie in the lower part of the commune of Fuilla, in the Rotjà valley. In his thesis, Simon described this church as "the most distinctive parish church in Conflent".[3] This was mainly because the church's nave is elevated well above the roof lines of the aisles on either side (Fig. 1). The upper part of the nave, with its tall, narrow windows, is referred to as a clerestory. Here, it is a simple but strikingly beautiful and original one. [4]

Simon agreed that Sainte-Eulalie merited a paper in its own right, written, in English, for an international audience. He set about drafting such a paper, based on, but also enlarging upon, material already published in his thesis. He had almost completed the paper when, tragically, he was diagnosed with leukaemia. He died in December 2024.

Simon's paper has now been completed - with the lightest editorial touch possible. It is set out below. In particular, the paper's conclusion has been finished, hopefully in a way which Simon would have approved of. Images, largely taken from Simon's own collection, have been assembled. A glossary of technical terms has been added.

Simon's paper is of a specialist nature. For the lay reader, the following brief and simple summary of some key points concerning the church may be of interest.[5]

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[1] Literally "A little-known gem". But, for reasons set out in the final paragraph of this foreword, "A hidden gem" might be a more appropriate translation.

[2] "Rush, Simon John Nowell (2022) The first Romanesque architecture of Conflent, Pyrénées-Orientales, France (66). Tradition, system and style. PhD thesis, Birkbeck, University of London". Volume 1 - text; Volume 2 - images. Online at https://eprints.bbk.ac.uk/id/eprint/49950/. Sainte-Eulalie de Fuilla is described in pages 201-209.

[3] Thesis, page 162.

[4] "In elevation Sainte-Eulalie differs markedly from other aisled basilicas in Catalonia, with the nave rising significantly above the roof line of the aisles..." (Thesis, page 203).

[5] Sculptures, paintings and other items inside the church are of considerable interest, but Simon's study concerned only the building itself. Further information about the church and its contents can be found, for example at https://pop.culture.gouv.fr/notice/merimee/PA00104032 (in French).

Sainte-Eulalie is an early Romanesque church located in the commune of Fuilla (Pyrénées-Orientales), France. Fuilla is situated in the lower valley of the Rotjà, a river in the eastern Pyrenees. The commune consists of three hamlets built near the river, where its narrow valley widens. The church is situated in Fulla d'Avall, the lowest hamlet, at an altitude of 520 metres (Fig. 5).

Sainte-Eulalie is first mentioned in the year 906. It was, however, completely rebuilt subsequently and consecrated on 22 December 1031. The building was listed as a historic monument in 1965.

The church consists of a central nave and two side aisles, all three of which were roofed separately. [6] *The nave and aisles end in three semi-circular apses. The central nave (9.70 meters high) has a semi-circular barrel vault divided by three transverse arches into four sections of about four meters long each (Fig. 2). The side aisles are much lower (3.50 meters high) and have groined (ie, crossed) vaults. The large arches parallel to the nave, which separate the nave from the side aisles, are supported by cruciform pillars, about 1.60 metres thick (see the plan of the church at Fig. 3, taken from Simon Rush's thesis).*

The outer walls are 1.20 metres thick. A simple semi-circular arch door opens into the wall on the southern side. What was the main door, larger than the south door and located on the west wall, was revealed by relatively recent restoration work.

The west wall is adorned by Lombard-type arches (Fig. 4). The different rhythm adopted by the builder for the arches between the pilasters (decorative columns) of the western wall is notable: three and three on the north side and two and five on the south side. The arches on the south wall have a more regular pattern: six to the west of the door (with a window between the third and fourth), six to the east (in two groups of three separated by a pilaster) and five in the centre above the door (Fig. 10).

Unlike most churches in Conflent, Sainte-Eulalie was not constructed under the patronage of either of the two nearby Benedictine abbeys, Saint-Michel de Cuxa and Saint-Martin du Canigou. Exceptionally, the building programme at Fuilla was sponsored by the local population. However, the builder at Fuilla would have been familiar with, and influenced by, contemporary work at the abbeys and other nearby Romanesque churches. And he may have been employed himself at Saint-Martin before starting work at Fuilla.

The church of Sainte-Eulalie is a rural church of considerable regional and historical interest. In particular, it has been cited as a prototype for the later, larger and better-known Romanesque church of Sant Vicenç de Cardona, in Catalonia (Fig. 12). [7]

On seeing the church for the first time,[8] a visitor might be shocked to find that, despite the building's designation as an historic monument, part of the church's exterior is covered by contemporary buildings. In fact, the situation was even worse until some extensive and careful restoration work was carried out on the church in the latter part of the twentieth century.

It is to be hoped that a means can be found in due course for the whole of Sainte-Eulalie - Simon's "hidden gem" - to be made visible and accessible to the public.

A.M. (July 2026)

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[6] The wall over the north aisle is a remnant of a 12th century fortification, built against the church.

[7] "Santa Eulàlia de Fullà (1031) is the true prototype (in smaller dimensions and less ambitious, for economic reasons) of Sant Vicenç de Cardona..." - https://www.enciclopedia.cat/catalunya-romanica/santa-eulalia-de-fulla (in Catalan).

[8] The building is owned by the commune of Fuilla (Mairie de Fuilla, 41 ancien chemin de Villefranche, 66820 Fuilla; tel: 04.68.96.19.23; mail: mairie.fuilla@wanadoo.fr).

The village of Fuilla lies approximately 50 kilometres west of Perpignan in the centre of Conflent, an administrative subdivision of the Pyrénées-Orientales *département* whose boundaries approximate to those of one of the medieval Marcher counties established in the 9th century by Louis the Pious to defend the border with Muslim Spain.[9] The settlement extends along the west bank of the river Rotjà, slightly upstream from its confluence with the Têt, and retains the three divisions – '*d'amunt*', '*del mig*' and '*d'avall*' – which betray its origins as ribbon development along a trackway skirting the Canigou massif and linking the valleys north and south of the Pyrenean spine (Fig. 5).

The recurrent mention of a *villa Foliano* in the documentary record suggests that a settlement existed during the period of Roman control, and that it remained an important population centre under subsequent administrations. A church is known to have existed in the vicinity in 906,[10] but in common with other early religious foundations in the region this was probably constructed of timber, unmortared stone or packed earth (Fr. *pisé,* Cat. *tapia*), and required periodic renewal.[11] The surviving building represents the last of these replacements, being raised in conventional masonry in the second quarter of the 11th century, and consecrated in 1031.[12]

Unlike the majority of rural churches in Conflent, Sainte-Eulalie did not enjoy the patronage of either of the two neighbouring Benedictine abbeys, Saint-Michel de Cuxa and Saint-Martin du Canigou, which were largely responsible for the renovation of the local religious estate in the first half of the 11th century. That the building programme at Fuilla was financed by the villagers is made clear in the consecration charter, which names the ten individuals primarily responsible for underwriting the project, the nature of their donations indicating that they were leading members of the community rather than representatives of the local aristocracy. A larger group of minor benefactors presumably represented those fortunate enough to hold sufficient land for the support of a family, and the resources to make a modest contribution to the project. What the document does not mention is the sub-class – including slaves - which experienced a more marginal existence, and whose involvement in the project, if any, was limited to voluntary or directed labour.[13]

Two further details emerge from the document, the first being that governance of the church was formally transferred to Berengar, bishop of Elne, who was present at the dedication ceremony. This, together with the defining of the territory to be served and the financial contributions to be made by the populace, appears to confirm the creation of a parish, or at least the acknowledgement of one previously lacking official recognition. This was by no means uncommon during the period in question, when the role of the incumbent bishop appears to have been limited to encouraging the construction of parish churches, rather than initiating or financing specific projects. In addition, the church was provided with a cemetery which developed over time into a *cellera* (Cat. *sagrera*), a walled enclosure of consecrated ground affording the villagers a degree of protection for goods and chattels stored within its perimeter. Modifications to the complex occurred when a stronghold – *La*

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9 See https://en.wikipedia.org/wiki/County_of_Conflent (Wikipedia: County of Conflent).

10 Pierre Ponsich, *Limits històrics i repertori toponímic dels llocs habitats dels antics <Països> de Rosselló-Vallespir-Conflent-Capcir-Cerdanya-Fenolledès*, Prades, Revue 'Terra Nostra' [37] 1980, p.107: earliest citations, 'Villare Fauliano', 840-41; 'Sainte Eulalie', 906.

11 E. Junyent y Subirà, *L'arquitectura religiosa a Catalunya abans del romànic*, Montserrat (Publications de l'abadia de Montserrat) 1983, p.61.

12 For consecration charter, R. Orteig i Mata, *Les dotalies de les eglésies de Catalunya*, v. VII [54], Vic (Estudies històrics) 1996.

13 Numerous 9th and 10th century examples where the church was built by the voluntary labour of the community survive for the diocese of Urgell; see P. Bonnassie, *From Slavery to Feudalism in South-Western Europe*, Cambridge (Cambridge University Press) 1991. pp.243-5; 'Le clergé paroissial aux IXe-Xe siècles dans les Pyrénées orientales et centrales', pp.153-66 in P. Bonnassie [Ed], *Le clergé rural dans l'Europe médiévale et moderne: actes des XIIIe Journées internationales d'histoire de l'Abbaye de Fleuran, 6-8 septembre 1991*, Toulouse (Presses universitaires du Mirail) 1995.

Bullela – was later constructed alongside the north wall of the church, its remnants now converted to domestic use and obscuring all details of the external elevation on this side of the building. It is possible that the fortifications also enveloped the east end of the church to link with the tower which originally stood at the south-east corner of the nave, and may have caused the degradation of the upper horizons of the chevet.

Architectural analysis: fabric and external decoration.

An aisled basilica of relatively modest proportions, Sainte-Eulalie epitomises a style variant defined as 'First Romanesque' (*primer art romànic*) by Josep Puig i Cadafalch in the first quarter of the 20th century. During the *Congrès archéologique de France* held at Carcassonne and Perpignan in 1906, this noted Catalan architect, politician and architectural historian drew attention to similarities in the fabric and decoration of 11th century north Italian churches and those of his native province.[14] The theme was revisited in a collaborative work published between 1909 and 1917,[15] but it was not until the late 1920s that Puig extended his analysis to other regions of southern Europe, and isolated the diagnostic features which distinguished this phase of religious architecture from that of subsequent periods.[16]

As opposed to the rubble walling characterising Pre-Romanesque architecture in Catalonia, 11th century masonry was described as being raised in *petit appareil*, small 'hammer-split' blocks laid in roughly horizontal courses, with pilaster strips and arched corbel tables used to create recessed panels on the external elevations of the building. In contrast to the horseshoe or keyhole profiles associated with earlier traditions, openings in the envelope were invariably of semi-circular profile, with window embrasures given a pronounced external splay to cater for modifications to the liturgy, which demanded more light to be shed on the ritual performed within the church. Apart from these aesthetic markers, Puig emphasised the structural features introduced in early 11th century Catalonia from their predecessors, the most significant of these being the widespread adoption of stone vaulting as the preferred means of roofing the building, and the introduction of transverse arches to enhance its stability.

In a major departure from the schema outlined by Puig i Cadafalch, the stone used in building Sainte-Eulalie reflects the difficulty of quarrying and dressing the granite and heavily metamorphosed gneiss and schist formations of the Pyrenean core. Instead, primary material comprised rounded boulders obtained from river beds, or more angular blocks sourced from the coarse Miocene agglomerates which form the ridges between the parallel valleys draining the northern slopes of the massif, and would have been present as ground scatter across lowland areas cleared for agriculture. In common with other churches sited on the northern slopes of the Canigou massif, the masonry assemblage at Sainte-Eulalie comprises stone originating from both sources in a variable ratio between blocks showing signs of water erosion and those subjected to mechanical wear. A precedent for using such deposits was probably set by the neighbouring Benedictine foundations, many of their dependencies being rebuilt or remodelled during the early decades of the 11th century. The intensity of this activity required the establishment of an infrastructure dedicated to extracting and grading suitable stone, and which could be exploited by the patrons of the few community churches which remained outside the remit of the monasteries.

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[14] J. Puig i Cadafalch, 'Les influences lombardes en Catalogne', pp. 684-703, *Congrès archéologique de France (Carcassonne/Perpignan) 1906*, Paris (A. Picard) 1907.

[15] J. Puig i Cadafalch, A. Falgueray Silva, J. Goday y Casals, *L'arquitectura romànica a Catalunya*, Barcelona (Institut d'Estudis Catalans) 1983 (facsimile of editions 1909-17).

[16] J. Puig i Cadafalch, *Le premier art roman. L'architecture en Catalogne et dans l'Occident méditerranéen aux XIe et XIIe siècles*, Paris (Henri Laurens) 1928.

Although Puig's emphasis on *petit appareil* as a characteristic of First Romanesque buildings conjures up an image of materials of similar dimensions being set in even courses, this is only an approximation of the case at local sites (Fig. 6). In contrast to the random stonework of earlier buildings, 11th century fabric certainly became more homogenous, but variation in the size of the blocks was still sufficient to require deep mortar beds to ensure a degree of regularity. Unlike the practice associated with indigenous 10th century masons, there is no sign that interstitial packing was used to maximise the surface contact between adjacent blocks. The plain walling of Sainte-Eulalie confirms that quite wide parameters were applied to the selection of the primary material, the majority of the blocks being between 7.5cm and 15cm in depth, and the thickness of the bedding mortar adjusted to compensate for the two extremes being incorporated in a single course.

The only evidence that stone used in the backgound fabric was trimmed or squared-off after extraction occurs on the chevet (Fig. 7), where a higher proportion of the blocks present a rectangular face and the arris of the pilaster strips is more clearly defined.

Although gneiss and granite blocks comprise the larger proportion of the fabric, they are interspersed with a significant amount of schist, seemingly used in a random fashion. For example, there is no evidence for it being used in elongated blocks to improve the surface bond, or to tie the pilaster strips into the body of the walls. In contrast, the exclusive use of granite for the voussoirs forming the arches above the window and door openings shows that local masons were not averse to selecting stone for specific purposes, and confirms both that the means of working this difficult material were known in the early decades of the 11th century, and that tools of sufficient quality were available to achieve it (Fig. 8).

Two varieties of stone were not sourced from the immediate vicinity of the site, thin slabs of schist (*lauzes*) being employed to roof the structure and small blocks of travertine used to trace the arches of the corbel tables (Fig. 9). Strongly laminated schist suitable for roofing tiles outcrops at a number of locations on the southern slopes of the Fenouillèdes, the nearest to Fuilla being at Evol, which lies on a tributary of the Têt some 10km upstream from its confluence with the Rotjà. The problem of transporting pre-dressed slabs to Fuilla was eased by the existence of the Roman road, the *via Confluentana*, linking Llívia, on the Cerdagne plateau, to the coast.

Travertine was more locally available in deposits laid down by the numerous thermal springs of the Coronet, the area of Devonian marble outcropping either side of Villefranche-de-Conflent. Relatively light in weight and easily worked, this was nevertheless reserved for architectural detailing at both Sainte-Eulalie and neighbouring churches.

The one local source of stone ignored in the fabric of the church is Villefranche marble: given the assumed presence of this material in both scree slopes and ground scatter, the fact that it is only occasionally incorporated in the masonry presents something of a conundrum. There is nothing intrinsically difficult in working marble to create blocks of the required dimensions, and its crystalline composition is no less conducive to bonding with lime mortar than that of gneiss or granite.

The nature of the available primary material had implications for the qualities required of the bonding agent. In the case of lime putty, the dearth of calcareous sedimentary deposits in the local stratigraphy probably required this to be sourced from either the Jurassic and Cretaceous limestones outcropping further north in the Corbières, or the calcretes of the Roussillon plain. An outside possibility is that lime was acquired from the Devonian marble of Villefranche, spoil from the working of the stone being known to have been used for the purpose towards the end of the medieval period.[17]

The provenance of the aggregate used in local mortar production is equally unclear,

[17] C. Jandot, 'Le four à chaux de Les Pedreres', pp.353-57 in *Archéologie d'une montagne brûlée*, O. Passarrius, A. Catafau & M. Martzluff [Eds], Canet en Roussillon (Éditions Trabucaire) 2009.

although sand was almost certainly dredged from the beds of the major watercourses for use throughout the uplands. On the lower slopes of the massif, however, a coarser grade of material forms the matrix of the Miocene agglomerates: these naturally-leached grits were free from the contaminants found in riparian sands, and would have produced a mortar with attractive characteristics for masons working in the vicinity, being relatively rapid in initial set. This was an important factor where building stone lacked porosity, and thus tended not to adhere to the bonding agent; it was even more critical in the raising of *petit appareil* composed of rounded blocks, where point-to-point rather than surface-to-surface contact prevailed.

The extent and variations in the external decoration at Sainte-Eulalie correspond closely to the evolution of the style associated by Puig i Cadafalch with the 1030s: not only does it extend beyond the chevet to adorn the other elevations of the building, but the arched corbel tables at the head of individual panels reflect more complex sequencing than those associated with earlier periods. The most sophisticated work is still visible on a preserved section of the chevet, this unfortunately amounting to no more than one side of the central apse and a much-defaced section of its northern neighbour. Crucially, any application of decorative features above the eaves arcades was destroyed during the construction of the fortifications associated with *La Bulella*. It is nevertheless still possible to admire the care taken in raising the background fabric of this part of the church, which includes a greater proportion of regular squared blocks than used elsewhere in the envelope.

A pair of pilasters arranged symmetrically either side of the axis organise the surface of the central apse into three separate fields, with that at the centre being approximately twice the width of those to either side.[18] Each arcade of the eaves corbelling is centered on the median line of the window below, with their component arches being delicately traced in small, squared blocks of travertine set on projecting wedge-shaped modillons at their free ends. Pilasters are absent on the northern apse, the corbel table thus forming an uninterrupted band at the summit of the wall, and the single, axial window being spanned by a simple semi-circular arch. All the window openings have a pronounced external splay, their semi-circular heads formed by voussoirs of equal height beneath a series of stretchers arranged to echo the curve of the arch below (*arco bardellonato*). Illumination at this end of the church was augmented by a cruciform opening set in the gable of the nave above the roofline of the central apse, a detail now only visible from inside the building (Fig. 2).

Sites have been identified in Burgundy where the corbelling formed a series of relieving arches embedded in the background fabric,[19] and was thus appreciated as a means of stabilising the spring-line of the vault. However, this was not the case at Fuilla: whereas the blocks forming the *arco bardellonato* above the extrados of the preserved window openings are clearly anchored in the external leaf of the wall, those of the corbel tables do not appear to be fully engaged. The stone used in the two locations also differs, the cuboid blocks of igneous or metamorphic material surmounting the window arch being replaced by travertine, which has low compressive strength, in the arcading at the eaves.

Symmetry was also the watchword applied when constructing the external wall of the southern collateral, where a central panel with five arches is bordered to either side by a pair of wider fields with 6-arched heads (Fig. 10). Here the individual arches are narrower than those of the apse, with the corbel table again delineated by small blocks of travertine.

In a departure from the pattern visible on the chevet, the stretchers forming a secondary arch over the south doorway project from the plane of the wall in the form of a

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[18] The infill between the two visible apses obscures further detail, but It is probable that the side panels were twinned, giving a sequence of 2:2:4:2:2 for the arches of the corbel table.

[19] C. Edson Armi, 'The Corbel Table', *Gesta* (39/2) 2000; the exampes cited are Saint-Martin de Chapaize (*fig.*2) and the Cluniac abbey church of Saint-Hippolyte (*fig.*13), both in Burgundy.

hood mould, a detail more frequently found in 12th century churches in Conflent. The pilasters, which project by less than 10cm from the body of the wall, rise from a plinth which forms the horizontal base of the panels ≈30cm above ground level; their placement is independent of the internal structural members of the aisle.

The south wall of the nave above the collateral is free from surface ornament, although re-roofing may have destroyed the original configuration of the eaves, as it has at other churches in the region. However, the inclusion of a projecting feature designed to reinforce the spring-line of the vault seems unlikely, given the undisturbed state of the stonework at the angle with the western façade. The one concession made to ensure the stability of the masonry above the roofline of the collaterals was by limiting the size of the window openings to either side of the nave, these presenting as narrow lancets set in the first, second and fourth bays. The sacristy abutting the eastern end of the southern collateral occupies the site of a tower for which no architectural details survive: it collapsed during the same storm that destroyed the one over the northern transept arm at Cuxa.

In contrast to the apse and south collateral wall, the surface decoration of the western façade shows certain idiosyncrasies which are difficult to read (Fig. 4). The roofline at the gable of both nave and south aisle is emphasised by arcades traced with the same delicacy as those of the apse. Rather than being evenly stepped to reflect the gradient of the roof, the seven arches of the nave wall are arranged horizontally in a 2:3:2 pattern, with the lateral pairs being slightly lower than those at the apex. The base framing to this central section is marked by a simple projection of the masonry just below the level of the aisle roofing, but the different widths of the pilasters reinforcing the angles of the building echo the pronounced asymmetry which emerges in the lower horizons of the fabric, that to the north being noticeably the broader, and extending beyond the eaves of the nave to form an external buttress. The dimensions of the window set in the gable wall of the nave distinguish it from openings elsewhere in the building, and suggest that it may be a later modification.

The west doorway is flanked by two panels to the south but three to the north, where they extend beyond the line of the central vessel, the series continuing beyond the broad pilaster sited eccentrically on the aisle wall. The different widths of the recesses to either side of the doorway preclude their being part of a continuous, uniform sequence, the implication being that this grand entrance to the church formed part of the original design.

Architectural analysis: ground plan and structural features.

As is the case with the external decoration, the footprint of Sainte-Eulalie conforms with the chronological development of the First Romanesque as outlined by Puig i Cadafalch, and which recurs at a number of the grander parish churches of early 11th century Catalonia. Based on the basilican model, the nave and aisles of the church lead directly to the three projecting apses of the chevet without the intervention of a defined transept (Fig. 3).

At Fuilla each side vessel (aisle) is divided into four bays by transverse arches which spring from the cruciform pillars of the arcades and their corresponding pilasters set in the external walls of the church : these reinforce a barrel vault over the nave but combine with formerets built into the lateral (outer) walls of the aisles to delineate rectangular, groin-vaulted compartments. In the body of the church, the diagonals of the groin vaulting merge into the angle formed by the transverse arches and lateral wall in a manner consistent with early First Romanesque practice (Fig. 11).[20]

Opposite the chevet, however, the lines of thrust are grounded on angular projections incorporated into the nave arcade piers and those of the pilasters projecting from the aisle walls, the extra detailing transforming the easternmost supports into compound (or proto-

[20] This stratagem persisted into the 12th century, where it recurs in the cathedral of La Seu d'Urgell.

compound) pillars.

Sainte-Eulalie differs markedly in elevation from other aisled basilicas in Catalonia, with the nave rising significantly above the roofline of the aisles. The lack of pilaster strips or an arched corbel table at the eaves of the nave leaves the fabric and springline of the vault without reinforcement other than that provided by panels of masonry raised above the transverse arches of the collaterals. There are signs that this has resulted in a slight lateral displacement of the upper horizons of the nave walls but this has not led to structural failure, which suggests that it may have occurred when the lime mortar was still sufficiently fresh to compensate for settlement.

Precedents

The means of roofing the aisles, the prominence of the clerestory and the modular system followed in constructing the building are three architectural idiosyncracies setting Sainte-Eulalie apart from other early 11th century monuments of the wider region. In Puig i Cadafalch's initial view, the combination of these features was seen as originating at Sant Vicenç de Cardona, sponsored by successive viscounts of Osona issuing from the Bremond family (Fig. 12). Although work commenced at the site in ca. 1020, the church was not consecrated until 1040, almost a decade after that at Fuilla. Moreover, both he and a later architectural historian, Walter Muir Whitehill, were hampered in their analysis of the structure by its conversion to military use, with the vertical division of the interior into three floors obscuring its architectural detailing.[21] Recent studies of the renovated building have confirmed that the clerestory, and possibly the groin vaulting to the collaterals, were not included in the original design, factors which further distance it from the programme carried out at Sainte-Eulalie.[22] A break in the masonry is visible above the arcades and marks the height of the original central vessel, this coinciding with the horizon where the outer orders of the nave piers terminate. In another departure from the situation at Fuilla, the raising of the clerestory walls at Cardona involved their being buttressed by external pilasters, although this measure may have been linked to the inclusion of larger window openings in the upper horizons of the modified building.

In considering precedents for the design of Sant Vicenç, Eric Fernie has proposed the cathedral of Acqui, consecrated in 1067, and the church of San Fruttuoso di Capodimonte as possible models, citing the reopening of trade routes between Genoa and Catalonia at the end of the first millennium as easing the transfer of architectural *savoir-faire* between the two regions.[23] Unfortunately, this supporting evidence for a mid-11th century date for the modifications at Cardona does little to explain why the inclusion of a prominent clerestory at Fuilla before 1031 was considered a viable option.

Located in one of the most fertile valleys of the county, raising the funds to construct a new church at Fuilla would have presented few problems; equally, the area of the parish would have required this to be a sizeable building. Both were undoubtedly contributory factors in determining the scale of the church, but they did not – singly or in combination – govern its design. Access to capital and lay involvement in driving innovation are phenomena which merit particular attention: that the 'village aristocracy' had the resources to underwrite such an impressive project tends to overshadow the issue of how they managed to

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21 W. Muir Whitehill, *Spanish Romanesque Architecture of the Eleventh Century*, London (Oxford University Press) 1941, p.45.

22 For example, E. Fernie, 'Sant Vicenç de Cardona and Byzantine Architecture revisited', in P Freixas & Camps [Ed], *Els 'comacini' i l'arquitectura romanica a Catalunya, Simposi Internacional, Universitat de Girona & Museu Nacional d'Art de Catalunya, novembre 2005*, Barcelona (Museu Nacional d'Art de Catalunya) 2010; 'Saint-Vincent de Cardona et la dimension méditérranéenne du premier art roman', *Cahiers de civilisation médiévale* (43) 2000. Also P. Reed, 'Structural Rationalism and the case of Sant Vicenç de Cardona', *Architectural History* [43] 2000.

23 E. Fernie, *Romanesque Architecture*, New Haven & London (Yale University Press) 2014, pp.56-57.

recruit an individual willing and capable of carrying it out. Unlike his counterpart at a prestigious Benedictine house, who might have been indemnified by his patrons against any critical failures in the building, the master-mason at Fuilla would have borne the sole responsibility for the viability of his design. Why, then, did he choose to erect such a sophisticated church, and where did he receive the training which enabled him to bring the project to a successful conclusion?

Questions of this nature are difficult to resolve even in regions where groups of similar buildings allow detailed comparisons to be made. There being no other contemporary monument in Catalonia where a prominent clerestory was included in the design, the master-mason at Fuilla must have looked elsewhere for his inspiration. Although knowledge of a precursor building which has not survived cannot be ruled out, attention might more profitably be directed to local precedents, two of these being the disposition of volumes favoured at the Pre-Romanesque abbey of Saint-Michel Cuxa, and the innovatory approach applied in vaulting the early 11th century complex at Saint-Martin du Canigou.

At Saint-Michel, consecrated in 974, the nave was raised considerably above the height of the original aisles, leaving a large expanse of plain walling without either internal or external buttressing, and confirming that a preference for tall naves existed prior to the 11th century. The clerestory was effectively reduced in height during the 1030s when the aisles were raised and roofed by half-barrel vaults, perhaps indicating that there was some concern for its structural integrity.

In the case of Saint-Martin, the decision to install vaulting throughout the two superimposed churches of the complex suggests a master-mason working at - or perhaps beyond - the limits of accepted practice. The failure to ground the supports of the upper storey on those of the underchurch and the absence of reinforcing pilaster strips on the lateral walls of the building emphasise the experimental nature of the construction techniques employed, these being securely dated to no later than 1026.[24] To an extent, the use of closely-spaced transverse arches throughout the lower level of the building mitigated the possibility of a catastrophic failure of the structural skeleton; equally, the stability of the nave of the upper church was aided by raising the barrel-vaulted collaterals to a similar height and covering the whole with a pitched roof (Fig. 13).

The influences governing the early introduction of this means of reinforcing the high nave in Catalonia remain a subject of debate, as it is more usually associated with a group of late 11th or early 12th century churches in western France (the 'Poitevin' model).[25]

In common with Saint-Martin du Canigou, a similar stratagem was adopted at Sant Pere de Casserres, another abbey church sponsored by a member of the Bremond family, and consecrated in 1050 (Fig. 14).[26] One possible common denominator in the design of these and other buildings was the link between their patrons and Oliba, a member of the comital family of Cerdagne-Conflent who was elected to the abbacy of Santa Maria de Ripoll and Saint-Michel de Cuxa in 1008, and installed as bishop of Vic in 1017. He is widely credited with promoting First Romanesque aesthetics and construction techniques, and as being one of the great 'builder-bishops' of the early 11th century.

Apart from the rebuilding or modification of the foundations under his direct control, he is generally considered to have encouraged the dissemination of First Romanesque aesthetics in Catalonia, and may well have influenced the building projects undertaken by his contemporaries - possibly by furnishing masons capable of designing and managing the

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[24] https://www.enciclopedia.cat/gran-enciclopedia-catalana/monestir-del-canigo

[25] The architectural descriptive derives from the approach adopted in roofing a group of late-11th or early 12th century churches in western France, prime examples being Saint-Savin-sur-Gartempe (*Vienne*) and Saint-Hilaire de Melle (*Deux-Sèvres*).

[26] Les Masies de Roda, Barcelona, Spain.

complex programmes of work undertaken by his contemporaries.

Conclusion

The most important inference to be drawn from the design and construction of Sainte-Eulalie is that lay patrons of rural churches were fully aware of the new aesthetic and building techniques pioneered by high-status religious foundations in early 11th century Catalonia. This is reflected in the texture of the masonry, the architectural detailing of the formed openings to the envelope and the Lombard decoration of the external elevations - all aspects of the First Romanesque style. It appears that these aspects were well within the competence of indigenous masons by the 1030s.

The programme of works at Fuilla followed immediately on the completion of Saint-Martin du Canigou not later than 1026. It seems reasonable to assume that an experienced member of the atelier at Saint-Martin du Canigou was engaged at Fuilla, and that he gained at Saint-Martin a first-hand knowledge of the advanced concept of statics, as applied throughout that monastic complex.

These observations nevertheless beg the question of why the 'Poitevin' model[27], adopted in the upper church at Saint-Martin du Canigou, was not chosen for the roofing of Sainte-Eulalie, where lateral support for the tall clerestory depends entirely on masonry panels raised above the transverse arches of the aisles, and is thus concentrated well below the spring-line of the nave vault.

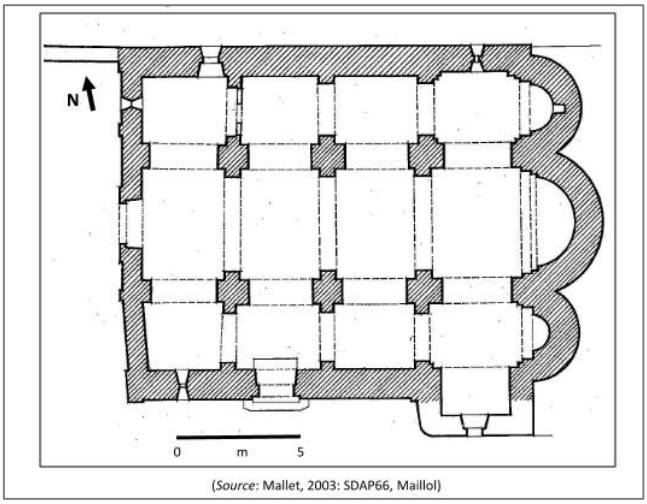
The passage of time has shown that such experimentation sanctioned by the sponsors was justified. But why they sanctioned it remains a tantalising mystery.

[27] (The 'Poitevan model' is explained in the body of the article, above. In this model the side aisles are higher than at Fuilla, and the whole church is covered by one roof.)

ANNEX 1 - IMAGES and DIAGRAMS

Fig. 1 - Sainte-Eulalie, south front

Fig. 2 - Sainte-Eulalie, nave with barrel vault



(*Source*: Mallet, 2003: SDAP66, Maillol)

Fig. 3 - Sainte-Eulalie, plan

Fig. 4 - Sainte-Eulalie, west front

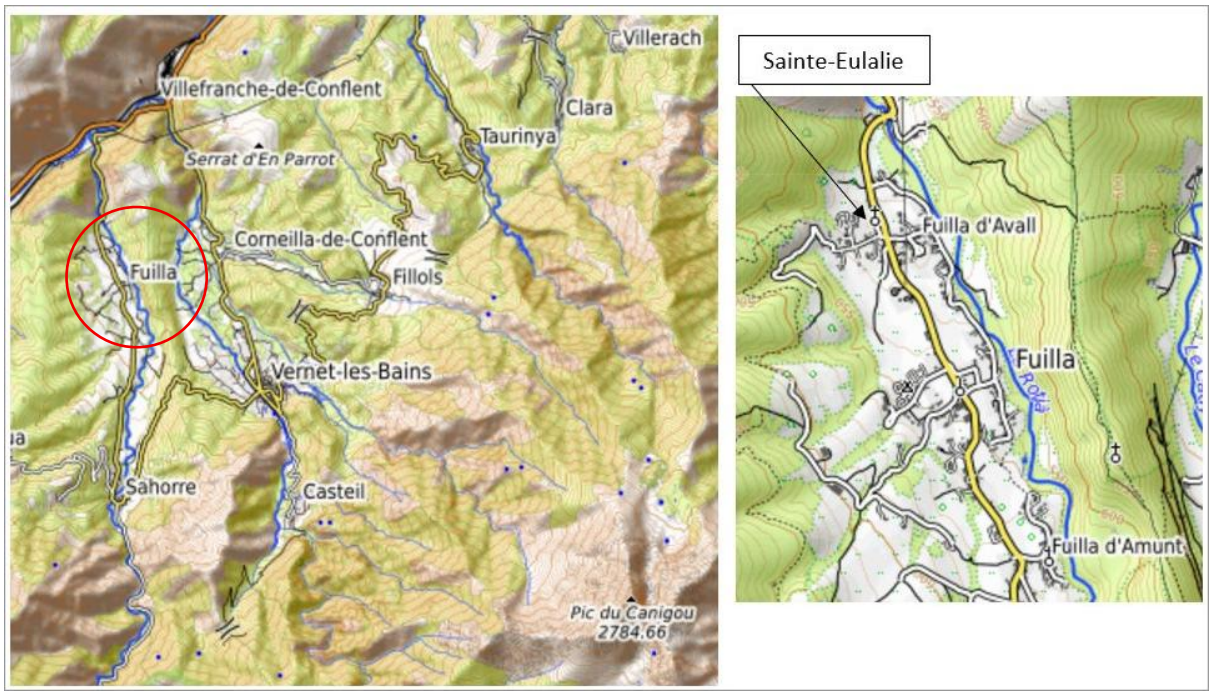


Fig. 5 - Location of the church

Fig. 6 - Sainte-Eulalie: *petit appareil*

Fig. 7 - chevet (exterior)

Fig. 8 - voussoirs

Fig. 9 - travertine in corbel table arches

Fig. 10 - southern collateral, exterior

Fig 11 - south aisle groin vaulting, west bay (detail).

Fig. 12 - Sant Vicenç de Cardona

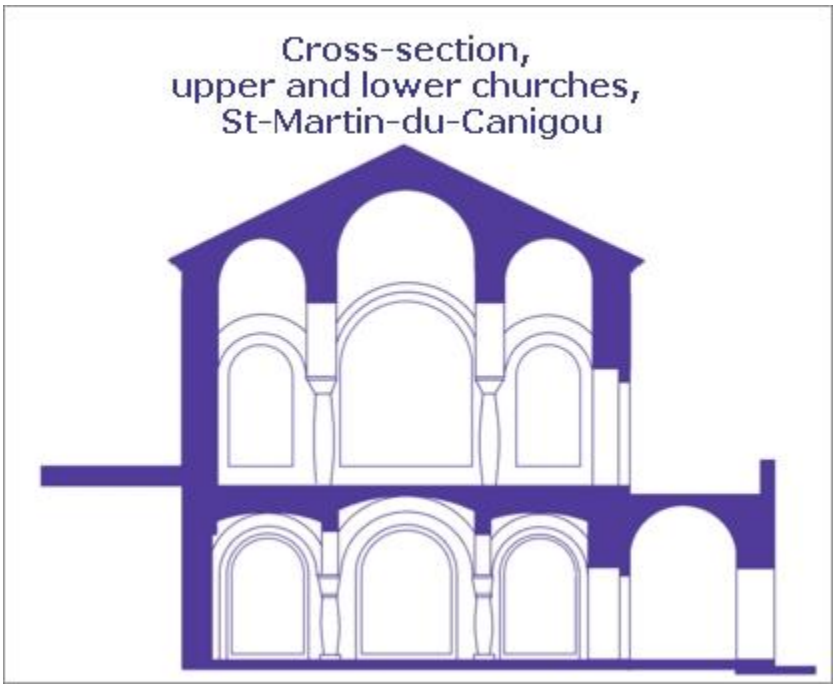


Fig. 13

Fig. 14 - Sant Pere de Casserres

ANNEX 2 - GLOSSARY

The main apse is that part of the chevet which is the semi-circular or polygonal termination of the main choir area. It is usually covered with a hemispherical vault or semi-dome. It's that rounded "bump-out" you often see at the far end of a church. In the chevet, the main apse may have two smaller apses on either side.

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An arcade in architecture is a series of arches placed side by side. See also eaves arcades.

***

An arched corbel table is a decorative masonry strip consisting of a series of small, blind arches resting on corbels (stone brackets that project from the wall). The arches are usually small and semi-circular. They don't pierce the wall; they are "blind," meaning they are purely decorative relief. At Sainte-Eulalie church, these arches may be referred to as Lombard-type arches, and are thus after a style which originated in the Lombardy region of northern Italy during the early Romanesque period (around the 10th and 11th centuries).

***

In architecture and woodworking, an arris is the sharp edge formed by the intersection of two surfaces. If you look at a square pillar, the 90-degree corner where the front meets the side is the arris. In the context of pilaster strips, because these strips are often rectangular and "flat-faced," they create very distinct, sharp right angles - each one an arris of the pilaster strip.

***

A barrel vault is a continuous, semi-cylindrical ceiling or roof structure created by extending a single arch along a given length. In church architecture, it forms a tunnel-like interior space and is one of the earliest and simplest vaulting forms.

***

The basilican model is the architectural blueprint that has defined Western Christian churches for nearly two millennia. The word "basilica" originally referred to a specific functional layout borrowed from Roman civic life. When Christianity was legalized in the 4th century, Christians needed large indoor spaces for worship. They adapted the Roman Basilica, which served as a public meeting hall or law court. The traditional basilican plan is characterized by a longitudinal axis - meaning it is longer than it is wide - directing the eye toward the most sacred part of the building. The nave is the large central area where the congregation stands or sits. The aisles are lower hallways located on either side of the nave, separated by a row of columns or arches. The apse is a semi-circular recess at the far end of the nave, where the altar is located. Over time, architects added a transept - a transverse section that crosses the nave at a right angle near the apse. This transformed the rectangular footprint into the shape of a cross, known as the Latin Cross plan.

***

In the context of Romanesque (and Gothic) architecture, the central vessel is the primary longitudinal space of the church - most commonly referred to as the nave. The term "vessel" is used because these great stone churches were often conceptualized as metaphorical ships (the word nave actually comes from the Latin *navis*, meaning ship).

***

In church architecture, the chevet (a French word for "headpiece") refers to the entire eastern end of the church. See also apse.

***

A clerestory is the upper part of a nave that rises above the aisle roofs. It contains windows to let in natural light.

***

Collateral - see southern collateral.

***

A corbel is any stone block that projects from a wall to support a structural element such as a cornice, roof beam, or arch. It is primarily structural. See also arched corbel tables and modillon.

***

A cornice is an ornamental moulding round the wall of a room just below the ceiling.

***

Courses: see petit appareil.

***

Cruciform pillars - see transverse arches.

***

Eaves arcades: an arcade in architecture is a series of arches placed side by side. On a Romanesque church, these are usually small, decorative arches carved into the stone just below the eaves (the edges of a roof that stick out over the walls).

***

The external elevation of a side of a building means the exterior face of the structure as seen from a specific standing point. Unlike a perspective drawing (which shows depth like a photo), an elevation is a two-dimensional, "head-on" drawing used to show heights, materials, and the placement of windows and doors.

***

If an opening is a hole in a wall, an embrasure is the way the wall "behaves" around that hole. In church architecture, an embrasure is the inward bevelling or splaying of a window or door opening. Because church walls - especially in Romanesque and early Gothic styles - were very thick, a simple rectangular cut would leave the interior very dark. The embrasure solves this by cutting the masonry at an angle.

***

In church architecture, the "envelope" refers to the physical barrier between the interior sanctuary and the outside world—essentially the walls, roof, and floor.

***

In masonry and church architecture, the external leaf refers to the outermost layer of a cavity wall. A cavity wall is like a sandwich: you have two separate walls (leaves) built parallel to each other with a gap in between. The external leaf is the "face" of the building - the part you see when standing in the churchyard.

If you are looking at a medieval church, it likely doesn't have a true "external leaf" in the modern sense. Instead, those walls are usually "rubble-cored." They have two outer faces of dressed stone with a middle filled with loose rocks and lime mortar. The modern concept of the "leaf" became much more prominent during the Gothic Revival and into the 20th century.

***

Extrados - see voussoir.

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A formeret (also commonly known as a wall rib) is a longitudinal arch or rib that sits directly against a wall and runs parallel to it.

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A groin vault is created by the intersection of two barrel vaults at right angles. The "groins" are the diagonal lines where the two vaults meet.

***

In church architecture, a hood mould (also known as a dripstone, label, or weathering) is a projecting decorative moulding found on the exterior of a building, specifically above an arch, doorway, or window. It can be thought of as a "stone eyebrow" for the building's openings.

***

Intrados - see voussoir.

***

In church architecture, a lancet is a tall, narrow window that terminates in a sharp, pointed arch at the top. The name comes from its resemblance to a "lancet" (a surgeon's small, double-edged blade).

***

Lombard-type arches - see arched corbel tables.

***

A modillon is a corbel that is carved, usually forming part of a decorative cornice. In Romanesque churches, modillons often carry figurative or symbolic sculpture.

***

In the context of 11th-century Romanesque architecture, petit appareil (French for "small apparatus" or "small coursework") refers to a specific masonry technique using small, roughly squared stones. The stones are generally small enough to be held in one hand or easily lifted by a single mason. The stones are also often roughly the same height, allowing them to be laid in horizontal rows or "courses." But, because the stones weren't perfectly flush, this style required thick mortar joints to fill the gaps and provide stability.

***

A pilaster is, in essence, a flattened, rectangular column that is attached to a wall rather than standing free. It looks like a column in profile but is actually part of the wall surface. Many Romanesque churches have exterior pilaster strips as well as interior pilasters which are aligned with the nave vaulting.

Pilaster strips are vertical, shallow protrusions on an exterior wall. They look like pillars, but they have no base and no capital (the decorative "head" of a column). Instead, they function as slim, vertical ribbons of stone that break up the flat surface of a wall. Pilaster strips are most famously associated with Lombard architecture, which spread from Northern Italy into the South of France. In petit appareil (small stone) masonry, these strips added a degree of visual rhythm, because large expanses of small, rough stones can look monotonous or "heavy." Pilaster strips divide the wall into vertical bays, giving the building a sense of height and order. But while they look like they are supporting the roof, in early Romanesque architecture, they are often purely decorative.

***

A relieving arch is an arch built above a lintel (itself a long piece of stone or wood at the top of a door or window frame that supports the wall above) or opening to divert the weight of the masonry above so that the lintel does not have to bear the full load.

***

In church architecture, a sacristy is a private room - usually located near the altar or sanctuary - where the "business" of the liturgy happens behind the scenes. It is the engine room of the church. Here, sacred vessels, vestments, and liturgical books are stored, and the clergy and altar servers gather to prepare and "vest" (put on their ceremonial robes) before a service begins.

***

In church architecture, the term "southern collateral" (often referred to simply as the south aisle) describes a specific longitudinal wing that runs parallel to the central nave on its southern side. In the context of a traditional cruciform (cross-shaped) church, the southern collateral is the space where congregants often walk or sit, separated from the main central area by a row of columns or arches. Most traditional Christian churches are "oriented," meaning the altar is at the east end and the entrance is at the west. Therefore, the southern collateral is the aisle on your right-hand side as you walk from the entrance toward the altar.

***

In church architecture, the spring-line (or springing line) is a critical transition point. It marks the exact level where the vertical support of a wall or pier ends and the curve of an arch or vault begins. It can be thought of as the "launchpad" for the ceiling. Below this line, the masonry is under purely vertical pressure; above it, the stones begin to lean inward, creating the lateral outward thrust characteristic of vaulted ceilings.

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Springer - see voussoir.

***

A stone-vaulted church has a self-supporting arched ceiling made of stone or brick. Before stone vaulting became standard, most early churches had flat wooden roofs. While wood was easier to build, it had two fatal flaws: it rotted, and it burned down - frequently. A "stone-vaulted" church is a building where the entire ceiling is a massive, heavy canopy of masonry.

***

A stretcher in church architecture refers to the orientation of a brick within masonry: it is a brick laid with its long side (the "stretcher" face) visible on the exterior of the wall. This is the most common brick orientation in traditional wall construction.

***

A transverse arch is a structural rib that arches across a space from one side to the other, perpendicular to the main axis of the building. If you imagine a long church hallway (the nave), most of the lines run lengthwise toward the altar. The transverse arches are the "ribs" that cut across that path, dividing the long ceiling into individual segments called bays.

***

Travertine is a type of freshwater limestone formed by a process of rapid precipitation of calcium carbonate, often at the mouth of a hot spring or in a limestone cave. It often has a fibrous or concentric appearance and exists in white, tan, cream-colored, and rusty varieties.

***

Vessel - see central vessel.

***

In church architecture, voussoirs are the wedge-shaped stones or bricks that make up an arch. The voussoirs are the individual pieces that, when locked together, allow the structure to support massive amounts of weight without the use of a single horizontal beam. The keystone is the central, wedge-shaped stone at the very top (the apex) of the arch. It is the final piece placed during construction and "locks" all the other stones into position. The springer (or springing) is the lowest voussoir on either side, located right where the arch begins to curve upward from the vertical support (the pier or column).

The outer curve of the voussoir is called the extrados, while the inner, visible curve seen from underneath is the intrados.